Metadata for Effigy Mounds National Monument, Spatial Vegetation Data: Cover type / Association level of the National Vegetation Classification System

Identification_Information:
Citation:
Citation_Information:
Originator: U.S. Geological Survey, Upper Midwest Environmental Sciences Center, 2630 Fanta Reed Road, La Crosse, Wisconsin 54603
Publication_Date: 20050131
Title: Vegetation Spatial Database Coverages for the Effigy Mounds National Monument Vegetation Mapping Project
Edition: Final
Geospatial_Data_Presentation_Form: vector digital data
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Effigy Mounds NM Vegetation Mapping Project
Publication_Information:
Publication_Place: Denver, Colorado
Publisher: U.S. Geological Survey, Center for Biological Informatics
Other_Citation_Details: This spatial database was prepared by the U.S. Geological Survey Upper Midwest Environmental Sciences Center for the USGS-NPS Vegetation Mapping Program. NatureServe provided ecological and vegetation classification support.
Online_Linkage: http://biology.usgs.gov/npsveg/efmo/index.html#geospatial_veg_info
Description:
Abstract: The vegetation spatial database coverage (vegetation map) is a product of the Effigy Mounds National Monument Vegetation Mapping Project, USGS-NPS Vegetation Mapping Program (VMP). The U.S. Geological Survey (USGS) Upper Midwest Environmental Sciences Center (UMESC) in La Crosse, Wisconsin, and the Minneapolis Office of NatureServe in Minneapolis, Minnesota, have completed mapping and classification of existing plant communities of Effigy Mounds National Monument (EFMO) and extended surroundings. Photointerpreters, ecologists, and botanists collaborated to describe National Vegetation Classification System (NVCS) plant communities (associations) and determine how best to map them using aerial photographs. --- Two vegetation map coverages were produced, the Yellow River and Sny Magill Units and their respective environs. Vegetation and land use were interpreted using high-quality mirror stereoscopes and 1:8,000-scale color infrared aerial photographs dated October 9, 2000. Polygons were mapped to 0.25 ha (0.62 acres) and, for specific classes, to 0.1 ha (0.25 acres). The interpreted data were digitally and spatially referenced using state-of-the-art mapping software, making the map data usable in geographic information systems (GIS). --- Covering 4,972 ha (12,286 acres), 2,844 polygons make up the 2 geospatial map coverages with an average polygon size of 1.7 ha (4.3 acres). Of the area mapped, 2,179 polygons (76.6%) represent NVCS plant communities as defined by NatureServe. Those polygons cover 3,167 ha (7,825 acres; 63.7%) of the total map area. Another 529 polygons (18.6%) represent NVCS Formation level types covering 1,316 ha (3,251 acres; 26.5%) of the total map area. The remaining 136 polygons (4.8%) represent land use features covering 489 ha (1,208 acres; 9.8%). EFMO lands comprise 1,022 ha (2,526 acres; 20.6%) of the map coverage area. About 563 ha (1,390 acres; 11.3%) of the map coverage area is of Iowa's Yellow River State Forest. --- Results from a thematic accuracy assessment of map classes representing NVCS plant communities provide an overall accuracy of 92% (Kappa index of 90%). Most individual map class themes exceed the VMP standard of 80% with a 90% confidence interval. --- The vegetation spatial database coverages are projected in Universal Transverse Mercator (UTM), Zone 15, using North American Datum of 1983 (NAD83).
Purpose: The vegetation spatial database coverage was produced for the Effigy Mounds National Monument Vegetation Mapping Project, USGS-NPS VMP. The focus of this metadata report centers on the vegetation map coverage and not necessarily the vegetation classification or accuracy assessment. Although references are made

to classification and accuracy assessment, their documentation are found in separate metadata reports and in the EFMO Project Report.

Supplemental_Information: The vegetation mapping team collected 63 vegetation plot samples for analyses, defining 15 NVCS plant communities. Two plant communities were added based on less formal sampling data, affirming 17 NVCS plant communities at EFMO. An additional 10 vegetation units were classed at the NVCS Formation level depicting human disturbance and cultivated lands. --- Of 47 map classes developed for the mapping project, 30 represent the 17 NVCS plant communities. Plant communities, primarily forested types, were subdivided to provide resource managers and researchers information the plant community level could not provide. These map class phases typically define recurring variations within a plant community and suggest an index to disturbance history and integrity of the plant community. Another 9 map classes represent the 10 NVCS Formation level vegetation units, and an additional 8 map classes depict general land cover of land use and open water, closely representing Level II of USGS Land Use and Land Cover (LUC) classification. --- A detailed listing of map classes and their link to the NVCS or USGS LUC classifications (plus listing of physiognomic modifiers that are added to map classes representing vegetation) is provided in the Entity and Attribute Information section of this metadata report. They are also listed in the EFMO Project Report. --- The vegetation spatial database coverages are available in ArcInfo Export (e00) and Spatial Database Transfer Standard formats at the USGS-NPS VMP's Internet site.

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20050131
Currentness_Reference: publication date

Status:
Progress: Complete
Maintenance_and_Update_Frequency: None planned

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -91.252281
East_Bounding_Coordinate: -91.153274
North_Bounding_Coordinate: 43.146414
South_Bounding_Coordinate: 42.927538

Description_of_Geographic_Extent: Effigy Mounds National Monument in northeast Iowa, including the Yellow River and Sny Magill Units, and extended environs. --- Bounding Coordinates for the Yellow River unit coverage: North 43.146414, East -91.172366, South 43.043555, West -91.252281. Bounding Coordinates for the Sny Magill unit coverage: North 42.954931, East -91.153274, South 42.927538, West -91.181616. Bounding Coordinates for the two coverages combined are designated below.

Keywords:
Theme:
Theme_Keyword_Thesaurus: None
Theme_Keyword: National Park
Theme_Keyword: USGS-NPS Vegetation Mapping Program
Theme_Keyword: Effigy Mounds National Monument Vegetation Mapping Project
Theme_Keyword: Vegetation Map
Theme_Keyword: Digital Spatial Database
Theme_Keyword: Land Cover
Theme_Keyword: Land Use
Theme_Keyword: Photointerpretation
Theme_Keyword: Photo Interpretation
Theme_Keyword: Vegetation Mapping
Theme_Keyword: Vegetation
Theme_Keyword: National Vegetation Classification Standard
Theme_Keyword: National Vegetation Classification System
Theme_Keyword: NVCS
Theme_Keyword: U.S. National Vegetation Classification
Theme_Keyword: USNVC
Theme_Keyword: International Vegetation Classification

Place:
Place_Keyword_Thesaurus: None
Place_Keyword: Effigy Mounds National Monument
Place_Keyword: EFMO
Place_Keyword: Yellow River
Place_Keyword: Sny Magill
Place_Keyword: Harpers Ferry
Place_Keyword: Marquette
Place_Keyword: Allamakee County
Place_Keyword: Clayton County
Place_Keyword: Iowa
Place_Keyword: USA
Access_Constraints: GIS software capable of reading ArcInfo coverage format.
Use_Constraints: 1) Those using the spatial database should understand the data and determine for themselves the fitness of the data prior to use. 2) For publication and dissemination, citations or credit should be given to the U.S. Geological Survey Center for Biological Informatics, the National Park Service, the U.S. Geological Survey Upper Midwest Environmental Sciences Center, and NatureServe. 3) Mention of trade names or commercial products in this metadata report does not constitute endorsement or recommendation for use by the U.S. Department of the Interior, U.S. Geological Survey.
Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USGS-NPS Vegetation Mapping Program Coordinator
Contact_Address:
Address_Type: mailing and physical address
Address: U.S. Geological Survey, Center for Biological Informatics, MS 302, Room 8000, Building 810, Denver Federal Center
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: (303) 202-4220
Contact_Facsimile_Telephone: (303) 202-4219
Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov
Browse_Graphic:
Browse_Graphic_File_Name: efmoveg.jpg
Browse_Graphic_File_Description: Graphic file showing vegetation distribution of Effigy Mounds NM and environs. Low resolution for web browser - 293 KB file size.
Browse_Graphic_File_Type: JPG
Browse_Graphic:
Browse_Graphic_File_Name: vegmap_large.jpg
Browse_Graphic_File_Description: Graphic file showing vegetation distribution of Effigy Mounds NM and environs. High resolution for presentation - 970 KB file size.
Browse_Graphic_File_Type: JPG
Data_Set_Credit: The USGS Upper Midwest Environmental Sciences Center and NatureServe.
Native_Data_Set_Environment: ESRI ArcInfo 8.0.2 (UNIX-ARC/INFO); ESRI ArcGIS ArcInfo Workstation 9.0; Microsoft Windows 2000 Version 5.0 (Build 2195) Service Pack 4.
Cross_Reference:
Citation_Information:
Originator: U.S. Geological Survey, Upper Midwest Environmental Sciences Center, 2630 Fanta Reed Road, La Crosse, Wisconsin 54603
Publication_Date: 20050131
Title: Effigy Mounds National Monument Vegetation Mapping Project
Geospatial_Data_Presentation_Form: document
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program

Issue_Identification: Effigy Mounds NM Vegetation Mapping Project
Publication_Information:
Publication_Place: Denver, Colorado
Publisher: U.S. Geological Survey, Center for Biological Informatics
Other_Citation_Details: The Effigy Mounds National Monument (EFMO) Vegetation Mapping Project is an initiative of the U.S. Geological Survey (USGS)-National Park Service (NPS) Vegetation Mapping Program (VMP). (For more information on VMP, see larger work citation below.) The goals of the project are to adequately describe and map plant communities of EFMO and immediate surroundings and to provide the NPS Inventory and Monitoring (I&M) Program, resource managers, and biological researchers with useful baseline vegetation information. The USGS Upper Midwest Environmental Sciences Center (UMESC) in La Crosse, Wisconsin, and the Minneapolis Office of NatureServe in Minneapolis, Minnesota, have mapped and classified the existing plant communities at EFMO and extended surroundings. --- Common to all VMP mapping projects, the three major components of the EFMO Vegetation Mapping Project are vegetation classification, vegetation mapping, and map accuracy assessment. Two sets of aerial photographs were collected during summer and fall of 2000, and the mapping project was officially inaugurated spring 2001 with a scoping meeting where partners discussed the project's objectives, goals, and methods. Photointerpreters, ecologists, and botanists collaborated to describe National Vegetation Classification System (NVCS) plant associations (communities) and determine how best to map them using the aerial photographs. Plant community descriptions were derived from analyses of vegetation sampling data at EFMO. These plant communities, along with NVCS Formation vegetation units depicting human disturbance and cultivated lands and with units describing human-made structures, were interpreted and mapped using aerial photographs and mirror stereoscopes. Spatial database coverages were produced of the Yellow River and Sny Magill units and their respective environs using state-of-the-art photogrammetric and GIS software. An accuracy assessment of the map coverages were performed on map classes representing NVCS plant communities, with results exceeding VMP standards. --- The EFMO project delivers many geospatial and vegetation data products in hard copy and digital formats, including an in-depth project summary report discussing methods and results, plant community descriptions and dichotomous key, representative ground photos of plant communities, a database containing the plot samples and accuracy assessment, field data sheets, aerial photograph prints and images (including geo-referenced photo mosaics), map classification and descriptions, and spatial coverages and maps of plant communities, fieldwork locations, aerial photo indexes, and project boundaries (each supported with metadata reports). All geospatial products are in Universal Transverse Mercator projection, Zone 15, using North American Datum of 1983. More VMP information and products of completed park mapping projects are on the Internet at <http://biology.usgs.gov/npsveg>.
Online_Linkage: http://biology.usgs.gov/npsveg/efmo/
Larger_Work_Citation:
Citation_Information:
Originator: U.S. Geological Survey, Center for Biological Information
Publication_Date: 200304
Title: USGS-NPS Vegetation Mapping Program (May 2003)
Geospatial_Data_Presentation_Form: document
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Overview
Publication_Information:
Publication_Place: Denver, Colorado
Publisher: U.S. Geological Survey, Center for Biological Informatics
Other_Citation_Details: Overview of USGS - NPS Vegetation Mapping Program (taken from http://biology.usgs.gov/npsveg/overview.html, May 2003): The USGS-NPS Vegetation Mapping Program is a cooperative effort by the U.S. Geological Survey (USGS) and the National Park Service (NPS) to classify, describe, and map vegetation communities in more than 270 national park units across the United States. This landmark program is both the first to provide national-scale descriptions of vegetation for a federal agency and the first to create national vegetation standards for its data products. Its goal is to meet specific information needs identified by the National Park Service. --- The vegetation mapping program is an important part of the NPS Inventory and Monitoring Program, a long-term effort to develop baseline data for all national park units that have a natural resource component. It is managed by the USGS Center for Biological Informatics, a unique information center designed to help scientists, land managers, the public,

and others locate and apply biological information. --- Program activities are based on peer-reviewed, objective science. Comprehensive vegetation information is provided at national and regional levels, while also serving local management needs of individual parks. Stringent quality control procedures ensure that products are accurate and consistent for initial inventory purposes and replicable for monitoring purposes. The spatially enabled digital products produced by the program are available on the World Wide Web. --- Program scientists have developed data collection procedures for classification, mapping, accuracy assessment, and use of existing data. Program products meet Federal Geographic Data Committee standards for vegetation classification and metadata, and national standards for spatial accuracy and data transfer. Standards include a minimum mapping unit of 0.5 hectares and classification accuracy of 80% for each map class. Nature Serve, an important partner in the USGS-NPS Vegetation Mapping program, is the caretaker of the National Vegetation Classification System, which is used by the program to classify vegetation communities. --- A report of project methods and results is provided at completion of individual projects. Project results include a rich set of data and information for each park project, as follows: --- Spatial Data: Aerial photography, Map classification, Map classification description and key, Spatial database of vegetation communities, Hardcopy maps of vegetation communities, Metadata for spatial databases, Complete accuracy assessment of spatial data, Vegetation Information. --- Vegetation classification: Dichotomous field key of vegetation classes, Formal description for each vegetation class, Ground photos of vegetation classes, Field data in database format.

Online_Linkage: http://biology.usgs.gov/npsveg/

Taxonomy:

Keywords/Taxon:

Taxonomic_Keyword_Thesaurus: None

Taxonomic_Keywords: National Vegetation Classification Standard

Taxonomic_Keywords: National Vegetation Classification System

Taxonomic_Keywords: NVCS

Taxonomic_Keywords: U.S. National Vegetation Classification

Taxonomic_Keywords: USNVC

Taxonomic_Keywords: International Vegetation Classification

Taxonomic_Keywords: Alliance

Taxonomic_Keywords: Association

Taxonomic_Keywords: Vegetation Community

Taxonomic_Keywords: Plant Community

Taxonomic_Keywords: Community Element Global

Taxonomic_Keywords: The Plants Database

Taxonomic_System:

Classification_System/Authority:

Classification_System_Citation:

Citation_Information:

Originator: US Department of Agriculture, Natural Resources Conservation Service

Publication_Date: 199612

Title: The PLANTS Database (1996)

Geospatial_Data_Presentation_Form: database

Series_Information:

Series_Name: The Plants Database

Issue_Identification: December 1996

Publication_Information:

Publication_Place: National Plant Data Center, Baton Rouge, Louisiana

Publisher: USDA, NRCS

Other_Citation_Details: The Plants Database as of December 1996. USDA Natural Resources Conservation Service. Web address: http://plants.usda.gov/plants. Version used in the PLOTS Database System (1997).

Online_Linkage: http://plants.usda.gov/plants

Classification_System_Modifications: This is the version of The PLANTS Database that is used in the The Nature Conservancy's PLOTS Database System (Version 1.1, 1997).

Taxonomic_Procedures: The plant community classification and descriptions for the EFMO Vegetation Mapping Project were developed through the analyses of vegetation sampling data using ordination and clustering techniques via computer software. Vegetation field plot data were entered into the PLOTS Database System (TNC

1997), which uses the USDA NRCS PLANTS Database. This database is available for download at the USGS-NPS VMP web site. A listing of vegetation species recorded with these field plots is provided in the EFMO Project Report, also available at the VMP web site.
Taxonomic_Classification:
Taxon_Rank_Name: Kingdom
Taxon_Rank_Value: Plantae

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: ased on results of a thematic accuracy assessment, the estimated overall accuracy for map classes representing National Vegetation Classification System (NVCS) natural/semi-natural associations (plant communities) is 92%, with a kappa index of 90%.
Logical_Consistency_Report: All polygon features were checked for topology and existence of label points using ArcInfo (Version 8.0.2). Each polygon begins and ends at the same point with the node feature. All nodes were checked for error so that there are no dangling features. There are no duplicate lines or polygons. All nodes were snapped together and polygons closed based on a specified tolerance. The tests for logical consistency were performed in ArcInfo.
Completeness_Report: All data within the bounding coordinates are complete with polygons representing ground features at the time of aerial photographs. Each polygon is described with an attribute code, which references the map class and any special modifier classes when applicable. This attribute code is cross-referenced within the database attribute table to the NVCS at all physiognomic and floristic levels. A 0.25 ha (0.62 acre), and for specific cases a 0.1 ha (0.25 acre), minimum mapping unit (MMU) were applied to map class polygons during photointerpretation mapping.
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: Photointerpretation data were spatially referenced with photogrammetric software using USGS 3.75-minute digital orthophoto quadrangles (DOQs) and USGS 7.5-minute digital elevation models (DEMs). The EFMO Yellow River and Sny Magill vegetation spatial database coverages are assumed to have positional accuracies meeting the U.S. National Map Accuracy Standards for DOQs & DEMs.
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: Four USGS 7.5-minute DEM grids (3 at 10m resolution, 1 at 30m) were used in conjunction with USGS DOQs to acquire vertical positions required by the photogrammetric software. This software maintains the accuracy of DEMs and allows the vegetation spatial database coverages to be draped on the landscape to eliminate or minimize relief distortion errors. The map coverages themselves do not possess vertical positions.
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey, Upper Midwest Environmental Sciences Center, 2630 Fanta Reed Road, La Crosse, Wisconsin 54603
Publication_Date: 20001009
Title: Aerial Photographs (October) of Effigy Mounds National Monument
Geospatial_Data_Presentation_Form: aerial photograph
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Effigy Mounds NM Vegetation Mapping Project
Publication_Information:
Publication_Place: Denver, Colorado
Publisher: U.S. Geological Survey, Center for Biological Informatics
Other_Citation_Details: The October 2000 aerial photographs of Effigy Mounds National Monument and environs were collected as baseline imagery data to produce the vegetation spatial database coverages for the Effigy Mounds National Monument Vegetation Mapping Project, USGS-NPS Vegetation Mapping Program. The U.S. Geological Survey Upper Midwest Environmental Sciences Center (UMESC) of La Crosse, Wisconsin collected the aerial photographs in conjunction with the U.S. Fish and Wildlife Service (USFWS) Region 3 of Ft. Snelling, Minnesota. Funding for this effort was provided by the National Park Service.

Mounted in a USFWS Partenavia twin-engine aircraft, aerial photographs were collected using a Ziess Jena LMK 2000 camera loaded with KODAK AEROCHROME II Infrared Film 2443. To attain stereo viewing and full aerial coverage, parameters were set to collect aerial photos with a 60% forward-lap and a 30% side-lap. The 1:8,000-scale photographs were collected at an elevation above ground level of 4,000 ft. --- The photo mission required five flight lines to cover the Yellow River Unit, and another two flight lines to cover the Sny Magill Unit. In all, 69 aerial photos were collected on October 9, 2000 (57 photos for the Yellow River Unit, 12 photos for the Sny Magill Unit). HAS Images, Inc. (Dayton, Ohio) processed the original 9 x 9-inch positive transparency film, and produced two sets of contact prints. --- An earlier set of CIR aerial photos was collected by the UMESC on August 25, 2000 (1:15,000-scale) to capture peak vegetation biomass, which became particularly useful for mapping early senescing macrophytic wetland vegetation. This August photo set compliments the October set, which was collected to capture peak fall leaf phenology for forest mapping.

Source_Scale_Denominator: 8000
Type_of_Source_Media: photographic transparency and print
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20001009
Time_of_Day: unknown
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: EFMO October 2000 CIR Aerial Photographs (UMESC 2000a)
Source_Contribution: Aerial images used for field work, photo interpretation, and subsequent map automation.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey, Upper Midwest Environmental Sciences Center, 2630 Fanta Reed Road, La Crosse, Wisconsin 54603
Publication_Date: 20000825
Title: Aerial Photographs (August) of Effigy Mounds National Monument
Geospatial_Data_Presentation_Form: aerial photograph
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Effigy Mounds NM Vegetation Mapping Project
Publication_Information:
Publication_Place: Denver, Colorado
Publisher: U.S. Geological Survey, Center for Biological Informatics
Other_Citation_Details: The August 2000 aerial photograph set of Effigy Mounds National Monument and environs was collected to compliment the October 2000 aerial photo set, which was used to produce the vegetation spatial database coverages for the Effigy Mounds National Monument Vegetation Mapping Project, USGS-NPS Vegetation Mapping Program. The October photos captured peak fall leaf phenology for forest mapping. The August photos, however, captured peak vegetation biomass, which became particularly useful for mapping early senescing macrophytic wetland vegetation. --- The U.S. Geological Survey Upper Midwest Environmental Sciences Center (UMESC) of La Crosse, Wisconsin collected the aerial photographs in conjunction with the U.S. Fish and Wildlife Service (USFWS) Region 3 of Ft. Snelling, Minnesota. This effort was a side mission to another UMESC photo mission of the Mississippi River. Mounted in a USFWS Partenavia twin-engine aircraft, aerial photographs were collected using a Ziess Jena LMK 2000 camera loaded with KODAK AEROCHROME II Infrared Film 2443. To attain stereo viewing and full aerial coverage, parameters were set to collect aerial photos with a 60% forward-lap and a 30% side-lap. The 1:15,000-scale photographs were collected at an elevation above ground level of 7,500 ft. --- The photo mission required four flight lines to cover the Yellow River Unit, and one flight line to cover the Sny Magill Unit. In all, 28 aerial photos were collected on August 25, 2000 (24 photos for the Yellow River Unit, 4 photos for the Sny Magill Unit). HAS Images, Inc. (Dayton, Ohio) processed the original 9 x 9-inch positive transparency film, and produced one set of contact prints.
Source_Scale_Denominator: 15000
Type_of_Source_Media: photographic transparency and print
Source_Time_Period_of_Content:

Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20000825
Time_of_Day: Unknown
Source_Currentness_Reference: ground condition
Source_Citation_Abbreviation: EFMO August 2000 CIR Aerial Photographs (UMESC 2000b)
Source_Contribution: Aerial photographs used to interpret vegetation senesced or obscured by shadow on the October 9, 2000 aerial photographs.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 1994
Title: USGS 3.75-minute Digital Orthophoto Quadrangles of Effigy Mounds National Monument
Geospatial_Data_Presentation_Form: digital orthophoto quadrangle
Series_Information:
Series_Name: U.S. Geological Survey Digital Orthophoto Quadrangle Program
Issue_Identification: 3.75-minute
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey, Earth Science Information Center
Other_Citation_Details: USGS digital orthophoto quadrangles are black & white (gray-scale) orthorectified images derived from aerial photographs. The 3.75-minute DOQs used for the EFMO vegetation mapping project are the Clayton NE, Clayton SE Harpers Ferry SE, Harpers Ferry SW, Prairie du Chien NE, Prairie du Chien NW, Prairie du Chien SE, & Prairie du Chien SW quadrangles derived from taken May 17, 1994 aerial photos. All DOQ are 10 m resolution. Projection in Universal Transverse Mercator, Zone 15, using North American Datum of 1983, Geodedic Reference System 80 spheroid.
Source_Scale_Denominator: 12000
Type_of_Source_Media: online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1994
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: EFMO USGS 3.75-minute DOQ (USGS 1994)
Source_Contribution: Geo-spatial images used for geo-referencing (horizontal, x-y) aerial photo interpretation data.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 2001
Title: USGS 7.5-minute Digital Elevation Model of Effigy Mounds National Monument
Geospatial_Data_Presentation_Form: digital elevation model
Series_Information:
Series_Name: U.S. Geological Survey Digital Elevation Model Program
Issue_Identification: 7.5-minute
Publication_Information:
Publication_Place: Menlo Park, California
Publisher: U.S. Geological Survey, Earth Science Information Center
Other_Citation_Details: USGS Digital Elevation Model (DEM) data files are digital representations of cartographic information in a raster form. DEMs consist of a sampled array of elevations for a number of ground positions at regularly spaced intervals. The 7.5-minute DEMs used for the EFMO vegetation mapping project are the Clayton, Harpers Ferry, & Prairie du Chien quadrangles derived from various source dates from 1953 to 1983. The Clayton & Prairie du Chien quads are 10 m grid resolution, and the Harpers

Ferry quad is 30 m. Projection in Universal Transverse Mercator, Zone 15, using North American Datum of 1983, Geodedic Reference System 80 spheroid.
Source_Scale_Denominator: 24000
Type_of_Source_Media: online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2001
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: EFMO USGS 7.5-minute DEM (USGS 2001)
Source_Contribution: Geo-spatial images used for geo-referencing (vertical, z) aerial photo interpretation data.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey, Upper Midwest Environmental Sciences Center
Publication_Date: 20050131
Title: Map Classes for the Effigy Mounds National Monument Vegetation Mapping Project
Edition: Final
Geospatial_Data_Presentation_Form: spreadsheet
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Effigy Mounds NM Vegetation Mapping Project
Publication_Information:
Publication_Place: La Crosse, Wisconsin
Publisher: U.S. Geological Survey, Upper Midwest Environmental Sciences Center
Other_Citation_Details: Map classification developed specifically for the Effigy Mounds National Monument Vegetation Mapping Project. Includes crosswalk to the National Vegetation Classification System floristic and physiognomic levels (names and codes), NatureServe Ecological Systems, and U.S. Geological Survey Land Use and Land Cover Classification System (Level 2).
Type_of_Source_Media: Digital database file
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20050131
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: EFMO Map Classification (UMESC 2005a)
Source_Contribution: Map classification defining polygon data (vegetation and general land cover).
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey, Upper Midwest Environmental Sciences Center, 2630 Fanta Reed Road, La Crosse, Wisconsin 54603
Publication_Date: 20050131
Title: Vegetation Spatial Database Coverage for the Effigy Mounds National Monument Vegetation Mapping Project
Edition: Final
Geospatial_Data_Presentation_Form: vector digital data
Series_Information:
Series_Name: USGS-NPS Vegetation Mapping Program
Issue_Identification: Effigy Mounds NM Vegetation Mapping Project
Publication_Information:
Publication_Place: Denver, Colorado
Publisher: U.S. Geological Survey, Center for Biological Informatics
Other_Citation_Details: This spatial database was prepared by the U.S. Geological Survey Upper Midwest

Environmental Sciences Center for the USGS-NPS Vegetation Mapping Program. NatureServe provided ecological and vegetation classification support.
Online_Linkage: http://biology.usgs.gov/npsveg/efmo/
Type_of_Source_Media: Digital database file
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20050131
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: EFMO Vegetation Map Coverages (UMESC 2005b)
Source_Contribution: Geo-spatial database of polygon data showing locations of vegetation types and general land cover.
Source_Information:
Source_Citation:
Citation_Information:
Originator: NatureServe
Publication_Date: 2003
Title: International Vegetation Classification (2003a)
Geospatial_Data_Presentation_Form: database
Publication_Information:
Publication_Place: Arlington, Virginia
Publisher: NatureServe
Other_Citation_Details: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, Virginia, USA.
Online_Linkage: http://www.natureserve.org/
Type_of_Source_Media: online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2003
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: NVCS Floristic Classes (NatureServe 2003a)
Source_Contribution: Vegetation classification (floristic association and alliance types, 2003) defining natural/semi-natural vegetation types in the EFMO Yellow River and Sny Magill vegetation spatial database coverages.
Source_Information:
Source_Citation:
Citation_Information:
Originator: National Spatial Data Infrastructure, Federal Geographic Data Committee, Vegetation Subcommittee
Publication_Date: 199706
Title: National Vegetation Classification Standard (1997)
Edition: June 1997
Geospatial_Data_Presentation_Form: document
Series_Information:
Series_Name: Standards
Issue_Identification: Vegetation Classification and Information Standards
Publication_Information:
Publication_Place: Reston, Virginia
Publisher: Federal Geographic Data Committee
Other_Citation_Details: Federal Geographic Data Committee. 1997. Vegetation classification standard, FGDC-STD-005.
Online_Linkage: http://www.fgdc.gov/standards/documents/standards/vegetation
Type_of_Source_Media: online
Source_Time_Period_of_Content:

Time_Period_Information:
Single_Date/Time:
Calendar_Date: 199706
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: NVCS Physiognomic Classes (FGDC 1997)
Source_Contribution: Standard vegetation classification system (physiognomic levels) used for classification structure.
Source_Information:
Source_Citation:
Citation_Information:
Originator: NatureServe
Publication_Date: 2003
Title: International Vegetation Classification; Ecological Systems (2003b)
Geospatial_Data_Presentation_Form: database
Publication_Information:
Publication_Place: Arlington, Virginia
Publisher: NatureServe
Other_Citation_Details: NatureServe. 2003a. International Ecological Classification Standard: Terrestrial Ecological Systems of the United States. Natural Heritage Central Databases. NatureServe, Arlington, Virginia, USA.
Online_Linkage: http://www.natureserve.org/
Type_of_Source_Media: online
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2003
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: EFMO Ecological Systems (NatureServe 2003b)
Source_Contribution: Ecological System units used to organize natural/semi-natural plant communities as defined in the EFMO Yellow River and Sny Magill vegetation spatial database coverages.
Source_Information:
Source_Citation:
Citation_Information:
Originator: U.S. Geological Survey
Publication_Date: 1976
Title: A Land Use and Land Cover Classification System for Use with Remote Sensor Data
Geospatial_Data_Presentation_Form: document
Series_Information:
Series_Name: Geological Survey Professional Paper
Issue_Identification: 964
Publication_Information:
Publication_Place: 1976
Publisher: USGS
Other_Citation_Details: Anderson, J. R., E. Hardy, J. Roach, and R. Witter. 1976. A Land Use and Land Cover Classification System for Use with Remote Sensor Data. Geological Survey Professional Paper 964. U.S. Government Printing Office, Washington, D.C.
Type_of_Source_Media: paper
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1976
Time_of_Day: Unknown
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: USGS LUC (1976)

Source_Contribution: A land use and land cover classification system crosswalked to within the vegetation spatial database coverage. Crosswalked to Level II of the classification.

Process_Step:

Process_Description: INTRODUCTION: --- The vegetation spatial database coverage (vegetation map) is a product of the EFMO Vegetation Mapping Project, USGS-NPS VMP. The focus of these process steps is on the making of the vegetation map itself and not necessarily on the vegetation classification or accuracy assessment. Although references are made to classification and accuracy assessment, their documentation are found in separate metadata reports and in the EFMO Project Report.

Process_Date: 2000-2004

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey, Upper Midwest Environmental Sciences Center

Contact_Address:

Address_Type: mailing and physical address

Address: 2630 Fanta Reed Road

City: La Crosse

State_or_Province: Wisconsin

Postal_Code: 54603

Country: USA

Contact_Voice_Telephone: (608) 781-6451

Contact_Facsimile_Telephone: (608) 783-8058

Contact_Electronic_Mail_Address: URL address: http://www.umesc.er.usgs.gov/umesc_home.html

Hours_of_Service: 7:30 AM - 4:00 PM, M-F

Contact_Instructions: Ask receptionist for national park mapping contact in geospatial applications branch.

Process_Step:

Process_Description: AERIAL PHOTOGRAPHY: --- The UMESC collaborated with the U.S. Fish and Wildlife Service Region 3 (Ft. Snelling, MN) to acquire aerial photographs. Color infrared (CIR) photographs were collected October 9, 2000 at a scale of 1:8,000 to capture fall leaf phenology conditions. An earlier CIR photo set was collected August 25, 2000 at a scale of 1:15,000 to capture peak vegetation biomass. Forward-lap and side-lap provided stereo viewing and full aerial coverage of EFMO and extended surroundings. Refer to the source produced citations for additional information on the project's aerial photographs. Also, more documentation on aerial photo acquisition and use can be found in the EFMO Project Report.

Process_Date: 2000

Source_Produced_Citation_Abbreviation: EFMO October 2000 CIR Aerial Photographs (UMESC 2000a)

Source_Produced_Citation_Abbreviation: EFMO August 2000 CIR Aerial Photographs (UMESC 2000b)

Process_Step:

Process_Description: SCOPING MEETING: --- Participants from the USGS (Center for Biological Informatics and UMESC), National Park Service (EFMO, Prairie Cluster Long Term Ecological Monitoring, Midwest Regional I&M & GIS offices), and NatureServe (Minneapolis Office) met May 1-2, 2001 at EFMO Headquarters. These cooperators discussed the project's objectives and methods, receive assignments, and become acquainted with EFMO's landscape. EFMO staff became informed of the USGS-NPS VMP, and mapping and ecology teams learned about the EFMO's management and science issues. A preliminary schedule with assigned tasks was developed and a project boundary was established.

Process_Date: 2001

Process_Step:

Process_Description: FIELD RECONNAISSANCE & MAP CLASSIFICATION: --- Prior to photointerpretation, field reconnaissance was performed by the photointerpretation team to learn, test, and verify photo signatures and to establish a map classification. Ecologists intermittently assisted to assure correct field calls and to verify additional vegetation types as they were encountered. --- The day after the aerial photographs were collected (October 10, 2001), mapping and ecology staff visited EFMO to observe leaf phenology as close as possible to the date of photography. Digital pictures and notes were collected, and compared to the aerial photographs upon arrival. --- The first a field reconnaissance with aerial photos in hand occurred in July 2001. This field effort was combined with plant community validation, providing a first glance at how vegetation types appear on the aerial photographs. --- Field reconnaissance of aerial photos continued in October 2001, providing mappers with similar vegetation conditions of the fall season as when the photos were collected in the same month just one year earlier.

Mappers became familiar with the vegetation and local ecology, and gained a further understanding on how to map vegetation types. Map classification representing vegetation types and land use were developed along with map conventions to promote mapping consistency. Throughout the project, the map classification and conventions were adjusted occasionally, reflecting knowledge of the vegetation and landscape at those given times. For a listing of map classes, see the Entity and Attribute Information section of this metadata report.
Source_Used_Citation_Abbreviation: EFMO October 2000 CIR Aerial Photographs (UMESC 2000a)
Source_Used_Citation_Abbreviation: EFMO August 2000 CIR Aerial Photographs (UMESC 2000b)
Process_Date: 2001-2002
Source_Produced_Citation_Abbreviation: EFMO Map Classification (UMESC 2005a)
Process_Step:
Process_Description: PHOTOINTERPRETATION: --- Photointerpretation was performed on the October 2000 1:8,000-scale CIR photo set using the film positive transparencies. The August 2000 1:15,000-scale CIR photos were used as an aid in mapping the October set (e.g., with early-senescing plants) and to map a section the October set did not cover (an area added to the map effort post photo mission). In all, 61 photos received photointerpretation data, 60 from the October set, and 1 photo from the August set. --- The film transparency photos were covered with clear acetate overlays. These overlays were registered to the photos by the fiducials and photo identification information. Photos were viewed for interpretation using a light table and Topcon M-3 mirror stereoscope with 3X and 6X binoculars. Each photo was paired up with the adjacent photo to view the images 3-dimensiaonally. To minimize edge distortion, interpretation was focused towards the center of each photograph. Ground features were delineated into polygons on the acetate overlays using Rapidograph ink pens. Each polygon received a map class code and any applicable physiognomic modifier codes. --- Standard photo signature characteristics were applied by mappers in their photointerpretation, including texture, color, pattern, and position in the landscape. Larger polygons were normally delineated first, then smaller polygons down to the MMU of 0.25 ha (0.62 acres) and, for specific classes, to 0.1 ha (0.25 acres). Application of the MMU during mapping tended to err below the guideline rather than above given the nonrectified aerial photos have inherent in them angle distortions and slight scale changes from high ridges to valley bottoms. --- In April 2002, field validation of the photointerpreted work was engaged to test the photointerpretation and application of the map classification. This field effort resulted in minimal adjustments to the photointerpreted work. The photointerpreted data was reviewed for quality assurance, and then advanced onto map automation.
Source_Used_Citation_Abbreviation: EFMO October 2000 CIR Aerial Photographs (UMESC 2000a)
Source_Used_Citation_Abbreviation: EFMO August 2000 CIR Aerial Photographs (UMESC 2000b)
Source_Used_Citation_Abbreviation: EFMO Map Classification (UMESC 2005a)
Process_Date: 2002
Process_Step:
Process_Description: MAP AUTOMATION & SPATIAL DATABASE DEVELOPMENT: --- The photointerpreted data were converted into a GIS-usable format using three fundamental processes; (1) geo-reference, (2) digitize, and (3) database enhancement. The resulting map products are two ArcInfo coverages (the Yellow River Unit and environs and the Sny Magill Unit and environs), each projected in UTM, Zone 15, using NAD83. --- The interpreted overlays were geo-referenced using OrthoMapper (Image Processing Software Inc., Madison, Wisconsin), a softcopy photogrammetric software for GIS. OrthoMapper is a computer program designed to create orthophotographs from scanned and unrectified photographs. The software features a method of visual orientation involving a point-and-click operation using existing geo-referenced horizontal and vertical base maps. OrthoMapper also has the capability to geo-reference photo interpreted overlays, which is of primary importance to us. Interpreted overlays are geo-referenced using the orthophotographs produced from the OrthoMapper software. First, each aerial photograph was scanned at 400 dots per inch (dpi) and 64 million colors, producing a series of Tagged Image File Format (TIFF) images. Then OrthoMapper was used to register each image establishing both horizontal and vertical coordinates. USGS 3.75-minute digital orthophoto quadrangle (DOQ) images were used to derive the horizontal coordinates of the aerial photo image. USGS 7.5-minute digital elevation model (DEM) grids were used to derive the vertical coordinates of the aerial photo image. Once orthophotos were made, each overlay of photointerpreted data was scanned at a resolution of 100 dpi and black and white, again producing a series of TIFF images. Again Orthomapper was used to register each overlay image, this time to their corresponding orthophoto just produced. Finally, the geo-referenced overlay images were mosaicked into workable groups (e.g., 15?20 overlays) for subsequent digitizing (3 groups for the Yellow River Unit and one for Sny Magill Unit). --- To produce digitized polygon vector coverages for use in GIS, the raster-based image mosaics of geo-referenced overlays containing the photointerpreted data were converted into a grid format using ArcInfo (Version 8.0.2, Environmental Systems Research Institute, Redlands, California). In

ArcTools, the ArcScan utility was used to trace the polygon data and produce ArcInfo vector-based coverages. Map attributes were digitally assigned codes (both map classes and physiognomic modifiers) to the polygons, and the digital data were checked against the photointerpreted overlays for line and attribute consistency. Lastly, the three Yellow River Unit coverages were merged. Ultimately, two seamless vegetation map coverages were generated (the Yellow River Unit and environs and the Sny Magill Unit and environs). --- At this stage, the map coverages have mere map attribute codes assigned to each polygon. To assign a set of meaningful information to the map coverages (e.g., as map class names, physiognomic definitions, link to NVCS level types), an attribute table containing this information was joined to each map coverage. (For map attribute items, see the Entity and Attribute section in this metadata report.) The attribute tables were produced in spreadsheet format (dBASE IV), which was then converted to an ArcInfo table, and finally joined to the spatial database coverage's table using the MAP_ATT item as the common attribute item. ArcInfo in ArcGIS (9.0) was used to produce the ArcInfo Export and Spatial Data Transfer Standard files of the map coverages.

Source_Used_Citation_Abbreviation: EFMO October 2000 CIR Aerial Photographs (UMESC 2000a)
Source_Used_Citation_Abbreviation: EFMO August 2000 CIR Aerial Photographs (UMESC 2000b)
Source_Used_Citation_Abbreviation: EFMO USGS 3.75-minute DOQ (USGS 1994)
Source_Used_Citation_Abbreviation: EFMO USGS 7.5-minute DEM (USGS 2001)
Source_Used_Citation_Abbreviation: NVCS Floristic Classes (NatureServe 2003a)
Source_Used_Citation_Abbreviation: NVCS Physiognomic Classes (FGDC 1997)
Source_Used_Citation_Abbreviation: EFMO Ecological Systems (NatureServe 2003b)
Source_Used_Citation_Abbreviation: USGS LUC (1976)
Process_Date: 2002-2004
Source_Produced_Citation_Abbreviation: EFMO Vegetation Map Coverages (UMESC 2005b)

Spatial_Data_Organization_Information:
Indirect_Spatial_Reference: Located in northeastern Iowa in Allamakee and Clayton counties, EFMO is adjacent to the Mississippi River in a topographically unique area known as the Paleozoic Plateau region. The EFMO headquarters is 3 miles north of Marquette, Iowa. The main section of EFMO, the Yellow River Unit, envelops the Yellow River near its confluence with the Mississippi River. The Sny Magill Unit is approximately 16 km (10 miles) south of headquarters within the Mississippi River floodplain.
Direct_Spatial_Reference_Method: Vector
Point_and_Vector_Object_Information:
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Complete chain
Point_and_Vector_Object_Count: 7144
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Label point
Point_and_Vector_Object_Count: 2536
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: GT-polygon composed of chains
Point_and_Vector_Object_Count: 2536
SDTS_Terms_Description:
SDTS_Point_and_Vector_Object_Type: Point
Point_and_Vector_Object_Count: 4

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: Universal Transverse Mercator
Universal_Transverse_Mercator:
UTM_Zone_Number: 15
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: 0.9996
Longitude_of_Central_Meridian: -93
Latitude_of_Projection_Origin: 0
False_Easting: 500000

False_Northing: 0
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: Coordinate Pair
Coordinate_Representation:
Abscissa_Resolution: 0.00008
Ordinate_Resolution: 0.00008
Planar_Distance_Units: meters
Geodetic_Model:
Horizontal_Datum_Name: North American Datum of 1983
Ellipsoid_Name: Geodetic Reference System 80
Semi-major_Axis: 6378137
Denominator_of_Flattening_Ratio: 298.257

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: efmo_mapylw.pat & efmo_mapsny.pat
Entity_Type_Definition: ArcInfo attribute tables from the EFMO Yellow River & Sny Magill vegetation spatial database coverages. (Numbers & dashes in front of Attribute Labels are added for sorting purposes; Attribute Labels are listed in the order they appear in the spatial database sets.)
Entity_Type_Definition_Source: Attribute tables developed by the USGS UMESC to describe the EFMO vegetation spatial database coverages, USGS-NPS VMP.
Attribute:
Attribute_Label: 01 - SHAPE
Attribute_Definition: Feature geometry.
Attribute_Definition_Source: ESRI.
Attribute_Domain_Values:
Unrepresentable_Domain: Coordinates defining the features.
Attribute:
Attribute_Label: 02 - AREA
Attribute_Definition: Area of feature in internal units squared.
Attribute_Definition_Source: ESRI.
Attribute_Domain_Values:
Unrepresentable_Domain: Positive real numbers that are automatically generated.
Attribute:
Attribute_Label: 03 - PERIMETER
Attribute_Definition: Perimeter of feature in internal units.
Attribute_Definition_Source: ESRI.
Attribute_Domain_Values:
Unrepresentable_Domain: Positive real numbers that are automatically generated.
Attribute:
Attribute_Label: 04 - EFMO_MAPYLW# & EFMO_MAPSNY#
Attribute_Definition: Internal feature number.
Attribute_Definition_Source: ESRI.
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: 05 - EFMO_MAPYLW-ID & EFMO_MAPSNY-ID
Attribute_Definition: User-defined feature number.
Attribute_Definition_Source: ESRI.
Attribute_Domain_Values:
Unrepresentable_Domain: Sequential unique whole numbers that are automatically generated.
Attribute:
Attribute_Label: 06 - MAP_ATT
Attribute_Definition: Map attribute code (map class code + any applicable physiognomic modifier codes).
Attribute_Definition_Source: USGS UMESC (project derived).

Attribute_Domain_Values:
Unrepresentable_Domain: Individual map attribute codes are not listed in this metadata docuement; there are 173 unique codes in the Yellow River & Sny Magill coverages collectively. Each map class code & each physiognomic modifier code, however, are listed & described in this metadata report.
Attribute:
Attribute_Label: 07 - MAP_CLASS
Attribute_Definition: Map class code.
Attribute_Definition_Source: USGS UMESC (project derived). Map classes are listed & described in Appendix G: Map Classification Descriptions and Visual Guide, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: FOM
Enumerated_Domain_Value_Definition: North-central Maple - Basswood Forest (east-facing maple phase). Represents, in part, the Acer saccharum - Tilia americana / Ostrya virginiana - Carpinus caroliniana Forest Association (I.B.2.N.a.8, CEGL002062).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FMB
Enumerated_Domain_Value_Definition: North-central Maple - Basswood Forest (north-facing maple phase). Represents, in part, the Acer saccharum - Tilia americana / Ostrya virginiana - Carpinus caroliniana Forest Association (I.B.2.N.a.8, CEGL002062).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FNO
Enumerated_Domain_Value_Definition: North-central Maple - Basswood Forest (north-facing red oak phase). Represents, in part, the Acer saccharum - Tilia americana / Ostrya virginiana - Carpinus caroliniana Forest Association (I.B.2.N.a.8, CEGL002062).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FOX
Enumerated_Domain_Value_Definition: North-central Maple - Basswood Forest (disturbed oak phase). Represents, in part, the Acer saccharum - Tilia americana / Ostrya virginiana - Carpinus caroliniana Forest Association (I.B.2.N.a.8, CEGL002062).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FOB
Enumerated_Domain_Value_Definition: North-central Maple - Basswood Forest (disturbed maple - basswood phase). Represents, in part, the Acer saccharum - Tilia americana / Ostrya virginiana - Carpinus caroliniana Forest Association (I.B.2.N.a.8, CEGL002062).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FMH
Enumerated_Domain_Value_Definition: North-central Maple - Basswood Forest (disturbed hardwoods phase). Represents, in part, the Acer saccharum - Tilia americana / Ostrya virginiana - Carpinus caroliniana Forest Association (I.B.2.N.a.8, CEGL002062).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FRH
Enumerated_Domain_Value_Definition: Ash - Elm - Walnut - Hackberry Semi-natural Forest. Represents the Fraxinus pennsylvanica - Ulmus americana - (Juglans nigra, Celtis occidentalis) Forest Association (I.B.2.N.a.47, CEGL005239).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FWO
Enumerated_Domain_Value_Definition: Midwestern White Oak - Red Oak Forest (white oak - chinquapin oak

phase). Represents, in part, the Quercus alba - Quercus rubra - Carya ovata Glaciated Forest and/or Quercus muehlenbergii - Quercus (alba, velutina) - (Juniperus virginiana var. virginiana) Bluff Woodland Associations (I.B.2.N.a.27 and/or II.B.2.N.a.21, CEGL002068 and/or CEGL002144).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FOH
Enumerated_Domain_Value_Definition: Midwestern White Oak - Red Oak Forest (oak - hickory phase). Represents, in part, the Quercus alba - Quercus rubra - Carya ovata Glaciated Forest Association (I.B.2.N.a.27, CEGL002068).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FSH
Enumerated_Domain_Value_Definition: Midwestern White Oak - Red Oak Forest (shagbark hickory phase). Represents, in part, the Quercus alba - Quercus rubra - Carya ovata Glaciated Forest Association (I.B.2.N.a.27, CEGL002068).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FBA
Enumerated_Domain_Value_Definition: Midwestern White Oak - Red Oak Forest (bigtooth aspen phase). Represents, in part, the Quercus alba - Quercus rubra - Carya ovata Glaciated Forest Association (I.B.2.N.a.27, CEGL002068).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FTA
Enumerated_Domain_Value_Definition: Midwestern White Oak - Red Oak Forest (trembling aspen phase). Represents, in part, the Quercus alba - Quercus rubra - Carya ovata Glaciated Forest Association (I.B.2.N.a.27, CEGL002068).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FRC
Enumerated_Domain_Value_Definition: Chinquapin Oak Bluff Woodland (red-cedar phase). Represents, in part, the Quercus muehlenbergii - Quercus (alba, velutina) - (Juniperus virginiana var. virginiana) Bluff Woodland Association (II.B.2.N.a.21, CEGL002144).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FHP
Enumerated_Domain_Value_Definition: Chinquapin Oak Bluff Woodland (hillside prairie phase). Represents, in part, the Quercus muehlenbergii - Quercus (alba, velutina) - (Juniperus virginiana var. virginiana) Bluff Woodland Association (II.B.2.N.a.21, CEGL002144).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HRP
Enumerated_Domain_Value_Definition: Central Mesic Tallgrass Prairie. Represents the Andropogon gerardii – Sorghastrum nutans - (Sporobolus heterolepis) - Liatris spp. - Ratibida pinnata Herbaceous Vegetation Association (V.A.5.N.a.2, CEGL002203).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FMC
Enumerated_Domain_Value_Definition: Silver Maple - Elm - (Cottonwood) Forest (maple phase). Represents, in part, the Acer saccharinum - Ulmus americana - (Populus deltoides) Forest Association (I.B.2.N.d.4, CEGL002586).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FEH
Enumerated_Domain_Value_Definition: Silver Maple - Elm - (Cottonwood) Forest (hackberry phase).

Represents, in part, the Acer saccharinum - Ulmus americana - (Populus deltoides) Forest Association (I.B.2.N.d.4, CEGL002586).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FSW
Enumerated_Domain_Value_Definition: Silver Maple - Elm - (Cottonwood) Forest (swamp white oak phase). Represents, in part, the Acer saccharinum - Ulmus americana - (Populus deltoides) Forest Association (I.B.2.N.d.4, CEGL002586).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FBO
Enumerated_Domain_Value_Definition: Silver Maple - Elm - (Cottonwood) Forest (bur oak phase). Represents, in part, the Acer saccharinum - Ulmus americana - (Populus deltoides) Forest Association (I.B.2.N.d.4, CEGL002586).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FCW
Enumerated_Domain_Value_Definition: Eastern Cottonwood - Black Willow Forest. Represents the Populus deltoides - Salix nigra Forest Association (I.B.2.N.d.15, CEGL002018).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: SWL
Enumerated_Domain_Value_Definition: Sandbar Willow Shrubland. Represents the Salix interior Temporarily Flooded Shrubland Association (III.B.2.N.d.6, CEGL008562).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: SBB
Enumerated_Domain_Value_Definition: Buttonbush Shrubland. Represents the Cephalanthus occidentalis / Carex spp. Northern Shrubland Association (III.B.2.N.f.1, CEGL002190).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HCG
Enumerated_Domain_Value_Definition: Reed Canary Grass Eastern Marsh. Represents the Phalaris arundinacea Eastern Herbaceous Vegetation Association (V.A.5.N.k.20, CEGL006044).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HRB
Enumerated_Domain_Value_Definition: River Bulrush Marsh. Represents the Schoenoplectus fluviatilis – Schoenoplectus spp. Herbaceous Vegetation Association (V.A.5.N.k.26, CEGL002221).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HGB
Enumerated_Domain_Value_Definition: Bulrush - Cattail - Burreed Shallow Marsh. Represents the Schoenoplectus tabernaemontani - Typha spp. - (Sparganium spp., Juncus spp.) Herbaceous Vegetation Association (V.A.5.N.k.33, CEGL006044).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HRC
Enumerated_Domain_Value_Definition: Arrowhead - Rice Cutgrass Marsh (rice cutgrass phase). Represents, in part, the Sagittaria latifolia - Leersia oryzoides Herbaceous Vegetation Association (V.B.2.N.e.7, CEGL005240).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HBA
Enumerated_Domain_Value_Definition: Arrowhead - Rice Cutgrass Marsh (arrowhead phase). Represents, in

part, the Sagittaria latifolia - Leersia oryzoides Herbaceous Vegetation Association (V.B.2.N.e.7, CEGL005240).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HPW
Enumerated_Domain_Value_Definition: Midwest Pondweed Submerged Wetland. Represents the Potamogeton spp. - Ceratophyllum spp. Midwest Herbaceous Vegetation Association (V.C.2.N.a.14, CEGL002282).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HAL
Enumerated_Domain_Value_Definition: American Lotus Aquatic Wetland. Represents the Nelumbo lutea Herbaceous Vegetation Association (V.C.2.N.a.100, CEGL004323).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HWL
Enumerated_Domain_Value_Definition: Water Lily Aquatic Wetland. Represents the Nuphar lutea ssp. advena – Nymphaea odorata Herbaceous Vegetation Association Herbaceous Vegetation Association (V.C.2.N.a.102, CEGL002286).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: ORS
Enumerated_Domain_Value_Definition: River and Stream. Represents, in part, the Streams and Canals LULC Level II (51).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: SUS
Enumerated_Domain_Value_Definition: Upland Scrub Mix. Represents Cold-deciduous shrubland NVCS Formation (III.B.2.N.a).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HUF
Enumerated_Domain_Value_Definition: Upland Herbaceous Mix. Represents the Tall sod temperate grassland NVCS Formation (V.A.5.N.a).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HGP
Enumerated_Domain_Value_Definition: Goat Prairie Remnant. Represents Medium-tall sod temperate or subpolar grassland NVCS Formation (V.A.5.N.c).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HBF
Enumerated_Domain_Value_Definition: Bottomland Herbaceous Mix. Represents the Temporarily flooded temperate or subpolar grassland NVCS Formation (V.A.5.N.j).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HEP
Enumerated_Domain_Value_Definition: Emergent Marsh Farm Pond. Represents the Seasonally flooded temperate or subpolar grassland NVCS Formation (V.A.5.N.k).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HSP
Enumerated_Domain_Value_Definition: Submersed Aquatic Farm Pond. Represents the Permanently flooded temperate or subpolar hydromorphic-rooted vegetation NVCS Formation (V.C.2.N.a).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: FCP

Enumerated_Domain_Value_Definition: Conifer Plantation Forest. Represents the Plantations (evergreen) NVCS Formation (I.A.8.C.a).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HPG
Enumerated_Domain_Value_Definition: Perennial Grass Crop. Represents the Perennial grass crops (hayland, pastureland) NVCS Formation (V.A.5.C.a).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: HCF
Enumerated_Domain_Value_Definition: Crop Field. Represents the Annual close-grown forbs and grasses and/or Annual row-crop forbs and grasses NVCS Formations (V.D.2.C.a and/or V.D.2.C.b).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: OFP
Enumerated_Domain_Value_Definition: Open Water Farm Pond. Represents, in part, the Other Agricultural Land LULC Level II (24).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: OSM
Enumerated_Domain_Value_Definition: Shallow Water and Mud Flat. Represents, in part, the Streams and Canals LULC Level II (51). When vegetation sparsely present, may represent the River Mud Flats Sparse Vegetation (VII.C.4.N.c.1, CEGL002314)
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: LRS
Enumerated_Domain_Value_Definition: Residential. Represents the Residential LULC Level II (11).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: LCM
Enumerated_Domain_Value_Definition: Commercial. Represents the Commercial and Services LULC Level II (12).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: LRR
Enumerated_Domain_Value_Definition: Road and Railroad. Represents the Transportation, Communications, and Utilities LULC Level II (14).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: LFB
Enumerated_Domain_Value_Definition: Farmstead. Represents, in part, the Other Agricultural land LULC Level II (24).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: LQR
Enumerated_Domain_Value_Definition: Quarry. Represents the Stip Mines, Quarries, and Gravel Pits LULC Level II (75).
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Attribute:
Attribute_Label: 08 - MAP_DESC
Attribute_Definition: Full map class name (base map class name, & phase map class name if applicable).
Attribute_Definition_Source: USGS UMESC (project derived).
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Map classification for the Effigy Mounds National Monument Vegetation Mapping Project.
Codeset_Source: Map classes are listed & described in Appendix G: Map Classification Descriptions and Visual

Guide, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Unrepresentable_Domain: See Enumerated Domain Value Definition for 07 - MAP_CLASS.
Attribute:
Attribute_Label: 09 - MAP_BDESC
Attribute_Definition: Base map class name.
Attribute_Definition_Source: USGS UMESC (project derived).
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Map classification for the Effigy Mounds National Monument Vegetation Mapping Project.
Codeset_Source: Base map classes are listed & described in Appendix G: Map Classification Descriptions and Visual Guide, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Unrepresentable_Domain: See Enumerated Domain Value Definition for 07 - MAP_CLASS.
Attribute:
Attribute_Label: 10 - MAP_PDESC
Attribute_Definition: Phase map class name.
Attribute_Definition_Source: USGS UMESC (project derived).
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Map classification for the Effigy Mounds National Monument Vegetation Mapping Project.
Codeset_Source: Phase map classes are listed & described in Appendix G: Map Classification Descriptions and Visual Guide, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Unrepresentable_Domain: See Enumerated Domain Value Definition for 07 - MAP_CLASS.
Attribute:
Attribute_Label: 11 - DENS_MOD
Attribute_Definition: Coverage density physiognomic modifier. Applied to all vegetation map classes.
Attribute_Definition_Source: Aerial Information Systems, Inc. 1995. Standard Interpretive Conventions (Viewgraph 3). Redlands, California.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 1
Enumerated_Domain_Value_Definition: Closed Canopy/Continuous (60-100% cover).
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: Open Canopy/Discontinuous (25-60% cover).
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: 3
Enumerated_Domain_Value_Definition: Dispersed-Sparse Canopy (10-25% cover).
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Attribute:
Attribute_Label: 12 - PTRN_MOD
Attribute_Definition: Coverage pattern physiognomic modifier. Applied to all vegetation map classes.
Attribute_Definition_Source: Aerial Information Systems, Inc. 1995. Standard Interpretive Conventions (Viewgraph 3). Redlands, California.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: A
Enumerated_Domain_Value_Definition: Evenly Dispersed
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: B
Enumerated_Domain_Value_Definition: Clumped/Bunched

Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: C
Enumerated_Domain_Value_Definition: Gradational/Transitional
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: D
Enumerated_Domain_Value_Definition: Regularly Alternating
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Attribute:
Attribute_Label: 13 - HT_MOD
Attribute_Definition: Height physiognomic modifier. Applied only to woody terrestrial vegetation map classes.
Attribute_Definition_Source: Aerial Information Systems, Inc. 1995. Standard Interpretive Conventions (Viewgraph 3). Redlands, California.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 2
Enumerated_Domain_Value_Definition: 15-30 m (50-98 ft)
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: 3
Enumerated_Domain_Value_Definition: 5-15 m (16-50 ft)
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Enumerated_Domain:
Enumerated_Domain_Value: 4
Enumerated_Domain_Value_Definition: 0.5-5 m (1.5-16 ft)
Enumerated_Domain_Value_Definition_Source: AIS, Inc. 1995.
Attribute:
Attribute_Label: 14 - DOM_MOD
Attribute_Definition: Oak forest component physiognomic modifier. Applied only to the FOH, Midwestern White Oak - Red Oak Forest (oak - hickory phase), map class.
Attribute_Definition_Source: USGS UMESC (project derived).
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: Q
Enumerated_Domain_Value_Definition: Oak >75% relative dominance
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Enumerated_Domain:
Enumerated_Domain_Value: M
Enumerated_Domain_Value_Definition: Oak 25-75% relative dominance
Enumerated_Domain_Value_Definition_Source: USGS UMESC (project derived).
Attribute:
Attribute_Label: 15 - ECO_SYSTEM
Attribute_Definition: Ecological Systems.
Attribute_Definition_Source: NatureServe. 2003b. International Ecological Classification Standard: Terretrial Ecological Systems of the United States. Natural Heritage Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: North-Central Interior Maple-Basswood Forest.
Enumerated_Domain_Value_Definition: Ecological System Unit.
Enumerated_Domain_Value_Definition_Source: NatureServe.
Enumerated_Domain:
Enumerated_Domain_Value: North-Central Interior Dry-Mesic Oak Forest and Woodland
Enumerated_Domain_Value_Definition: Ecological System Unit.
Enumerated_Domain_Value_Definition_Source: NatureServe.
Enumerated_Domain:

Enumerated_Domain_Value: Paleozoic Plateau Bluff and Talus
Enumerated_Domain_Value_Definition: Ecological System Unit.
Enumerated_Domain_Value_Definition_Source: NatureServe.
Enumerated_Domain:
Enumerated_Domain_Value: Central Tallgrass Prairie
Enumerated_Domain_Value_Definition: Ecological System Unit.
Enumerated_Domain_Value_Definition_Source: NatureServe.
Enumerated_Domain:
Enumerated_Domain_Value: North-Central Interior Floodplain
Enumerated_Domain_Value_Definition: Ecological System Unit.
Enumerated_Domain_Value_Definition_Source: NatureServe.
Codeset_Domain:
Codeset_Name: Ecological Systems of Effigy Mounds National Monument.
Codeset_Source: Ecological Systems are listed & described in Appendix A: Ecological Systems of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.

Attribute:
Attribute_Label: 16 - ASSN_CEGL
Attribute_Definition: Community Element Global code.
Attribute_Definition_Source: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Community Element Global codes of Effigy Mounds National Monument.
Codeset_Source: Community Element Global codes are listed & described in Appendix C: Plant Community Descriptions of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Unrepresentable_Domain: See Enumerated Domain Value Definition for 07 - MAP_CLASS.

Attribute:
Attribute_Label: 17 - ASSN_NAME
Attribute_Definition: Association scientific name.
Attribute_Definition_Source: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Associations (plant communities) of Effigy Mounds National Monument.
Codeset_Source: Associations are listed & described in Appendix C: Plant Community Descriptions of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Unrepresentable_Domain: See Enumerated Domain Value Definition for 07 - MAP_CLASS.

Attribute:
Attribute_Label: 18 - ASSN_CNAME
Attribute_Definition: Association translated (common) name.
Attribute_Definition_Source: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Associations (plant communities) of Effigy Mounds National Monument.
Codeset_Source: Associations are listed & described in Appendix C: Plant Community Descriptions of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.

Attribute:
Attribute_Label: 19 - ASSN_SNAME
Attribute_Definition: Association synonym name.
Attribute_Definition_Source: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.

Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Associations (plant communities) of Effigy Mounds National Monument.
Codeset_Source: Associations are listed & described in Appendix C: Plant Community Descriptions of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.

Attribute:
Attribute_Label: 20 - NVCS_CODE
Attribute_Definition: National Vegetation Classification System code (Formation Class to the Alliance level).
Attribute_Definition_Source: Federal Geographic Data Committee (FGDC). 1997. Vegetation classification standard, FGDC-STD-005-1997. --- NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NVCS codes to vegetation types of Effigy Mounds National Monument.
Codeset_Source: NVCS codes are listed in Appendix G: Map Classification Descriptions and Visual Guide, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.
Unrepresentable_Domain: See Enumerated Domain Value Definition for 07 - MAP_CLASS.

Attribute:
Attribute_Label: 21 - ALL_NAME
Attribute_Definition: Alliance scientific code & name.
Attribute_Definition_Source: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Alliances (scientific names) of Effigy Mounds National Monument.
Codeset_Source: Alliance scientific names are listed in Appendix C: Plant Community Descriptions of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.

Attribute:
Attribute_Label: 22 - ALL_CNAME
Attribute_Definition: Alliance translated (common) name.
Attribute_Definition_Source: NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Alliances (translated names) of Effigy Mounds National Monument.
Codeset_Source: Alliance translated names acquired from NatureServe's International Ecological Classification Standard: International Vegetation Classification Central Databases. Alliance scientific names (not translated names) are listed in Appendix C: Plant Community Descriptions of Effigy Mounds National Monument, Project Report - January 2005, Effigy Mounds National Monument, USGS-NPS Vegetation Mapping Program.

Attribute:
Attribute_Label: 23 - FORMATION
Attribute_Definition: National Vegetation Classification System Formation code & name.
Attribute_Definition_Source: Federal Geographic Data Committee (FGDC). 1997. Vegetation classification standard, FGDC-STD-005-1997. --- NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NVCS Formations of Effigy Mounds National Monument.
Codeset_Source: Extracted from FGDC 1997 & NatureServe 2003a.

Attribute:
Attribute_Label: 24 - SUBGROUP
Attribute_Definition: National Vegetation Classification System Formation Subgroup code & name.

Attribute_Definition_Source: Federal Geographic Data Committee (FGDC). 1997. Vegetation classification standard, FGDC-STD-005-1997. --- NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NVCS Formation Subgroups of Effigy Mounds National Monument.
Codeset_Source: Extracted from FGDC 1997 & NatureServe 2003a.
Attribute:
Attribute_Label: 25 - GROUP
Attribute_Definition: National Vegetation Classification System Formation Group code & name.
Attribute_Definition_Source: Federal Geographic Data Committee (FGDC). 1997. Vegetation classification standard, FGDC-STD-005-1997. --- NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NVCS Formation Groups of Effigy Mounds National Monument.
Codeset_Source: Extracted from FGDC 1997 & NatureServe 2003a.
Attribute:
Attribute_Label: 26 - SUBCLASS
Attribute_Definition: National Vegetation Classification System Formation Subclass code & name.
Attribute_Definition_Source: Federal Geographic Data Committee (FGDC). 1997. Vegetation classification standard, FGDC-STD-005-1997. --- NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NVCS Formation Subclasses of Effigy Mounds National Monument.
Codeset_Source: Extracted from FGDC 1997 & NatureServe 2003a.
Attribute:
Attribute_Label: 27 - CLASS
Attribute_Definition: National Vegetation Classification System Formation Class code & name.
Attribute_Definition_Source: Federal Geographic Data Committee (FGDC). 1997. Vegetation classification standard, FGDC-STD-005-1997. --- NatureServe. 2003a. International Ecological Classification Standard: International Vegetation Classification. Central Databases. NatureServe, Arlington, VA.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: NVCS Formation Classes of Effigy Mounds National Monument.
Codeset_Source: Extracted from FGDC 1997 & NatureServe 2003a.
Attribute:
Attribute_Label: 28 - LUC_II
Attribute_Definition: USGS Land Use and Land Cover Classification System name & code.
Attribute_Definition_Source: Anderson, J. R., E. Hardy, J. Roach, and R. Witter. 1976. A Land Use and Land Cover Classification System for Use with Remote Sensor Data. Geological Survey Professional Paper 964. U.S. Government Printing Office, Washington, D.C.
Attribute_Domain_Values:
Codeset_Domain:
Codeset_Name: Land Use and Land Cover Classification System types of Effigy Mounds National Monument.
Codeset_Source: USGS
Overview_Description:
Entity_and_Attribute_Overview: Items within the spatial database attribute tables include: 1) SHAPE - Feature geometry. 2) AREA - Area of feature in internal units squared. 3) PERIMETER - Perimeter of feature in internal units. 4) EFMO_MAPYLW# & EFMO_MAPSNY# - Internal feature number. 5) EFMO_MAPYLW-ID & EFMO_MAPSNY-ID - User-defined feature number. 6) MAP_ATT - Map attribute code (map class code + any applicable physiognomic modifier codes). 7) MAP_CLASS - Full map class name (base map class name, & phase map class name if applicable). 8) MAP_DESC - Full map class name (base map class name, & phase map class name if applicable). 9) MAP_BDESC - Base map class name. 10) MAP_PDESC - Phase map class name. 11) DENS_MOD - Coverage density physiognomic modifier. 12) PTRN_MOD - Coverage pattern physiognomic

modifier. 13) HT_MOD - Height physiognomic modifier. 14) DOM_MOD - Oak forest component physiognomic modifier. 15) ECO_SYSTEM - Ecological Systems. 16) ASSN_CEGL - Community Element Global code. 17) ASSN_NAME - Association scientific name. 18) ASSN_CNAME - Association translated (common) name. 19) ASSN_SNAME - Association synonym name. 20) NVCS_CODE - National Vegetation Classification System code. 21) ALL_NAME - Alliance scientific code & name. 22) ALL_CNAME - Alliance translated (common) name. 23) FORMATION - National Vegetation Classification System Formation code & name. 24) SUBGROUP - National Vegetation Classification System Formation Subgroup code & name. 25) GROUP - National Vegetation Classification System Formation Group code & name. 26) SUBCLASS - National Vegetation Classification System Formation Subclass code & name. 27) CLASS - National Vegetation Classification System Formation Class code & name. 28) LUC_II - USGS Land Use and Land Cover Classification System name & code.

Entity_and_Attribute_Detail_Citation: Various citations referencing Attribute Label items. Refer to individual Attributes within the Detailed Description Entity Type section for citations.

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USGS-NPS Vegetation Mapping Program Coordinator
Contact_Address:
Address_Type: mailing and physical address
Address: U.S. Geological Survey, Center for Biological Informatics, MS 302, Room 8000, Building 810, Denver Federal Center
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: (303) 202-4220
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Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov
Resource_Description: Downloadable Data
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Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: HTML
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: http://biology.usgs.gov/npsveg/efmo/index.html#geospatial_veg_info
Fees: none

Metadata_Reference_Information:
Metadata_Date: 20050131
Metadata_Review_Date: 20060831
Metadata_Contact:

Contact_Information:
Contact_Organization_Primary:
Contact_Organization: USGS-NPS Vegetation Mapping Program Coordinator
Contact_Address:
Address_Type: mailing and physical address
Address:
U.S. Geological Survey, Center for Biological Informatics, MS 302,
Room 8000, Building 810, Denver Federal Center
City: Denver
State_or_Province: Colorado
Postal_Code: 80225
Country: USA
Contact_Voice_Telephone: (303) 202-4220
Contact_Facsimile_Telephone: (303) 202-4219
Contact_Electronic_Mail_Address: gs-b-npsveg@usgs.gov
Metadata_Standard_Name: FGDC-STD-001.1-1999 Content Standard for Digital Geospatial Metadata, 1998 Part 1: Biological Data Profile, 1999
Metadata_Standard_Version: FGDC-STD-001-1998
Metadata_Extensions:
Online_Linkage: http://biology.usgs.gov/fgdc.bio/bionwext.txt
Profile_Name: Biological Data Profile FGDC-STD-001.1-1999